Claims PTO/tw

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1. (Amended) A method for producing a transducer slider, comprising [the steps of]:

(a) coating a substrate with a radiation-sensitive layer;

(b) imagewise exposing the radiation-sensitive layer to radiation according to an intensity pattern;

(c) developing the image into the radiation-sensitive layer; and

(d) transferring the image into the substrate to form a transducer slider having a surface profile comprising a tapered edge.

2. (Amended) The method of claim 1, wherein [step (a) comprises spin coating a] the radiation-sensitive composition is spin coated on the substrate.

3. (Amended) The method of claim 2, [further comprising, after step (a) and before step (b), (a') applying] wherein heat is applied to the radiation-sensitive layer after (a) and before (b).

4. (Amended) The method of claim 3, wherein [step (a')] the application of heat results in solvent evaporation from the radiation-sensitive layer.

5. The method of claim 1, wherein the radiation-sensitive layer is a positive resist.

6. The method of claim 1, wherein the radiation-sensitive layer is a low contrast resist.

7. The method of claim 1, wherein the radiation-sensitive layer has a thickness o about 1 to about 20 μm.

8. The method of claim 7, wherein the radiation-sensitive layer has a thickness o about 2 to about 10 μm.

9. The method of claim 1 wherein the radiation is photonic

10. The method of claim 1, wherein the radiation has a ultraviolet wavelength.

11. The method of claim 1, wherein the intensity pattern is provided using a grayscale mask.

12. The method of claim 11, wherein the patterned grayscale mask is electron-beam sensitive.

13. The method of claim 12, wherein the tapered edge corresponds to a portion of the patterned gray scale mask that has not been exposed to an electron beam.

14. (Amended) The method of claim 1, [further comprising, after step (b) and before step (c), (b')] wherein [applying] a solvent is applied to the radiation-sensitive layer after (b) and before (c).

15. (Amended) The method of claim 14, wherein the image is developed into the exposed portion of the radiation-sensitive layer by the solvent [develops the exposed portion of the radiation-sensitive layer in step] during (c).

16. (Amended) The method of claim 1, wherein [step (c) comprises exposing] the substrate is exposed to an etchant during (c).

17. The method of claim 16, wherein the etchant comprises a gas.

18. The method of claim 17, wherein the gas comprises plasma.

19. The method of claim 18, wherein the plasma is argon based.

20. The method of claim 16, wherein the etchant comprises a liquid.

21. The method of claim 15, wherein the etchant is an isotropic etchant.

22. (Amended) The method of claim 1, wherein [step (d) further comprises] simultaneous removal of the patterned layer is carried out during (d).

23. The method of claim 1, wherein the substrate comprises a ceramic material.

24. The method of claim 23, wherein the ceramic material comprises a carbide.

25. The method of claim 24, wherein the carbide is selected from the group consisting of aluminum carbide, silicon carbide, titanium carbide, boron carbide, geranium carbide, tungsten carbide, and mixed-metal carbide.

26. The method of claim 23, wherein the ceramic material comprises a nitride.

27. The method of claim 23, wherein the ceramic material comprises an oxide.

28. A structure for forming a transducer slider, comprising a substrate and a patterned layer thereon having a tapered edge, wherein the patterned layer corresponds to a predetermined transducer slider surface profile.

31. The structure of claim 28, wherein the predetermined transducer slider surface profile contains no exposed sharp edge.

32. The structure of claim 28, wherein the predetermined transducer slider surface profile contains two portions that intersect at an angle of about 0.5 to about 10 degrees.

33. The structure of claim 32, wherein the angle from about 1 to about 5 degrees.

34. (Amended) A method for producing a plurality of transducer sliders, comprising [the steps of]:

(a) coating a substrate with a photosensitive layer;

(b) exposing the photosensitive layer to curing radiation according to a patterned grayscale mask to convert the photosensitive layer into a patterned layer having a tapered edge;

(c) removing material from the substrate according to the patterned layer to form a surface profile comprising a tapered edge that corresponds to the tapered edge of the patterned layer; and

(d) sectioning the substrate into a plurality of transducer sliders.

35. (Amended) The method of claim 34, [further comprising, before step (a), assembling] wherein the substrate is assembled from a plurality of components before (a) that [after step (d)] will represent the plurality of transducer sliders after (d).

36. The method of claim 35, wherein the plurality of components are substantially identical.

37. The method of claim 36, wherein the plurality of components are assembled in an array.

38. The method of claim 37, wherein the array is rectilinear.

39. (Amended) The method of claim 35, [further comprising, before step (a), (e) cutting a] wherein a monolithic solid member is cut into the plurality of components before (a).

40. (Amended) A method for producing a transducer slider, comprising [the steps of]:

(a) coating a substrate with a radiation-sensitive layer;

(b) imagewise exposing the radiation-sensitive layer to radiation according to an intensity pattern;

(c) developing the image into the radiation-sensitive layer; and

(d) transferring the image into the substrate to form a transducer slider having a surface profile comprising a rounded corner.